

PARSHALLBURG BRIDGE  
(Ditch Road over Shiawassee River)  
Chesaning Township  
Saginaw County  
Michigan

HAER # MI-127

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record  
National Park Service  
Great Lakes Systems Office  
1709 Jackson Street  
Omaha, Nebraska 68102

HISTORIC AMERICAN ENGINEERING RECORD

PARSHALLBURG BRIDGE  
(Ditch Road Bridge)

HAER # MI-127

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Location: Spanning the Shiawassee River at Ditch Road  
Chesaning Township  
Saginaw County, Michigan

UTM: 16.732970.4780580

Quad: Chesaning West, Michigan (7.5 minute series)

Date of Construction: 1889/ 1954 stringers and deck replaced

Architect/Builder: Wrought Iron Bridge Company

Present Owner: Saginaw County Road Commission

Present Use: Vacant.  
Closed to Vehicular/Pedestrian traffic since October 13, 1992

Significance: This single span iron bridge was included in the National Register of Historic Places on October 12, 1994. Constructed in 1889, the bridge is the only Michigan example and the oldest of the three known surviving examples in the United States of the Thacher metal through truss bridge.

Project Information: This bridge will be replaced with a new wider bridge at the site of the existing structure. The bridge was recorded in 1998 by Joseph G. Perlard of the Saginaw County Road Commission, 3020 Sheridan Avenue, Saginaw, MI 49605. The report draws heavily from the Parshallburg Bridge National Register of Historic Places registration form prepared by Robert O. Christensen, National Register Coordinator for the Michigan State Historic Preservation Office, Bureau of Michigan History.

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Description:

The Parshallburg or Ditch Road Bridge is a single-span, Thacher metal through truss bridge. Engineers who have evaluated the structure's condition believe the metal is wrought iron because of the structure's relatively good overall condition. The eight-panel structure has a length of 140 feet and an overall deck width of 17.8 feet. The bridge stands on extensive abutments of rubble fieldstone. Now closed to traffic, it carries Ditch Road across the Shiawassee River at the unincorporated hamlet of Parshallburg, three and one-half miles south of Chesaning. A plaque above each portal contains the information that the structure was fabricated by the Wrought Iron Bridge Company of Canton, Ohio.

The bridge's inclined end chords and upper chords are formed from parallel channels riveted to cover plates above and to lattice bars beneath. The center pair of inclined struts on each side that form the inverted V forms characteristic of the Thacher truss are constructed in the same fashion. The vertical posts and portal and intermediate struts are constructed of pairs of riveted angles connected by lattice bars. The center ties and inclined suspenders of the web as well as the lower chords are of eyebars. Tie rods with turnbuckles serve as top lateral bracing. No sway bracing is present. The bridge's present deck is relatively modern, consisting of asphalt pavement over corrugated metal decking. The only railing is a standard modern steel guardrail.

Parshallburg is a former milling center which now contains only a few houses on either side of the north-flowing Shiawassee River. The nineteenth-century grist mill and dam, which formed the hamlet's focal point, stood a short distance to the south of the bridge. Foundations and the washed-out remnants of the dam are all that remain. The location is a beautiful one, with low, wooded hills flanking the fast-flowing river.

History:

The Parshallburg or Ditch Road Bridge is the only Thacher truss highway bridge in Michigan and the oldest of only three known surviving examples of this truss type in the United States.

In 1855, Israel Parshall (1815-65) dammed the Shiawassee River and built saw- and grist mills at opposite ends of the dam, thereby founding the hamlet of Havana (also spelled Havanna) or Parshallville. By the late 1880s, if not before, the area was also being called by its current name, Parshallburg. A post office existed at Havana from 1860 to 1868, when it was moved to nearby Oakley. The Parshall sawmill shows in the 1877 Beers atlas map of Havanna, but, according to the 1903 Chesaning Illustrated, "it was abandoned and in time the water undermined it and it fell down." The grist mill, labeled Havana Mills in Chesaning Illustrated, was originally a two-story, gable-roof building. Enlarged with a three-story ell after 1903, it remained in operation until "about 1968," according to an article on the mill in the November 3, 1979, Saginaw News. The deteriorating structure was demolished in 1982. The seven- or eight-foot high dam partially collapsed in the 1970s and only remnants now survive.

The first bridge at the present location was probably built soon after Parshall established his mills. The bridge the present structure replaced was probably the second bridge at the site. This second bridge was, according to the August 10, 1889, Chesaning Argus, an "iron bridge put up on piles only a few years ago...." The Argus explained that this bridge had grown dangerous.

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The Argus followed progress on the new bridge in its "Local News" column in the late summer and fall of 1889. On August 3, it noted that "Highway Commissioner Nason reports the completion of the abutments for the new iron bridge at Havana. It is said to be a fine job." The August 10 Argus reported that the old bridge "has been traded to the Smith Bridge Co. of Toledo, Ohio for a new and larger one to take its place." Despite this news, it is clear that the Smith Bridge Company did not fabricate the new bridge. What happened is not clear. Perhaps Smith Bridge was not able to fulfill the contract for some reason. The new structure was actually fabricated by the Wrought Iron Bridge Company of Canton, Ohio, as plaques above the bridge's portals indicate.

The Argus reported on August 24 that "The plank for the Havana bridge has arrived from Saginaw and is being hauled to the place of use" and on October 12 that "The iron bridge for Parshallburg has arrived and been taken to the site. Work of erecting it will begin immediately." No further notes in the Argus were located, but the bridge was likely completed by the end of the year.

The bridge is the only Michigan example and the oldest of the three known surviving examples in the United States of the Thacher truss type, a type invented by Edwin Thacher (1840-1920), then chief engineer of the Keystone Bridge Company of Pittsburgh, and first described by him in a paper read to the American Society of Civil Engineers in 1883 and published in the society's 1884 Transactions. Bridge-engineering historian Donald C. Jackson in "The Thacher Truss" explains that in its basic form the truss combines features of the multiple-intersection Pratt and Warren trusses, and utilizes certain design principles employed in the Bollman and Fink trusses. Thacher referred to it as a "combination of the triangular [Pratt/Warren] and suspension [Bollman/Fink] systems" and indicated that the members were arranged and connected with one another in a manner "free to change figure from the effect of temperature." Thacher believed temperature stresses to be very significant within many truss bridges he had inspected and his truss was designed so that "the inclined suspenders are connected with each other at [the] bottom [of the vertical compression members] but have no fixed connection with the bottom chord." Thacher stated that this insured that there was only one route for the load at any panel point to take to the abutments, eliminating temperature stresses within the truss.

Thacher claimed that his truss design also possessed advantages over other commonly used forms such as the Pratt and Warren trusses less "distortion or rattling and abrasion of parts" and thus "fewer repairs" and "a longer life," and a greater economy in workmanship and material and thus a lower first cost.

The desire for controlling costs in the competitive bridge-building industry may have been an important factor in the Wrought Iron Bridge Company's adoption of Thacher's truss design for this and several other bridges. Founded in 1871, the Wrought Iron Bridge Company was one of the leading metal-truss bridge-fabricating firms in the late nineteenth and early twentieth centuries. Technological historian Charles K. Hyde in Michigan's Highway Bridges: History and Assessment, the final report for a statewide historic highway bridge inventory project carried out in the early 1980s, reported that he had identified fifty examples of this firm's work built in Michigan. The report listed only seven surviving examples. Since the mid-1980s three of these seven have been demolished. Wrought Iron Bridge fabricated all three of the known surviving examples of the Thacher truss.

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The other examples are in Virginia and Colorado. The company's c. 1893 promotional booklet illustrates the Parshallburg Bridge and additional (now demolished) Michigan examples of the Thacher truss near Jeddo, St. Clair County; at Wahjamega, near Caro in Tuscola County; and near Cascade, Kent County.

Thacher's accomplishments as a designer of metal truss bridges included the huge six-span camelback truss Walnut Street Bridge in Chattanooga, Tennessee, which, built in 1891, "is the oldest surviving truss bridge of its size in the South originally built as a highway structure...." Thacher was an anomaly among bridge engineers in his day in that his interests and expertise was not confined to a single structural medium as were those of most engineers of the day. In addition to his metal bridge engineering, Thacher also pioneered in the design of bridges of reinforced concrete. His 1897 Melan Arch Bridge in Topeka, Kansas, is considered by Donald Jackson as "the first major reinforced-concrete bridge in the United States.

Federal critical bridge funds for replacement of the Parshallburg Bridge were awarded to Saginaw County in 1986. Construction of the bridge on a new alignment downstream or north of the historic bridge was proposed. There were no specific plans for the existing bridge. Neighborhood concerns about the potential adverse effects of constructing a bridge with approach roads on a new alignment resulted in the project being placed on hold for more than five years. Following the closing of the bridge to traffic on October 15, 1992, the project was revived. Reviewing the effect of the federally assisted bridge-replacement project, the Michigan State Historic Preservation Office determined that the project would have an adverse effect on the historic bridge unless the county found some means of providing for the future of the old bridge. The county road commission then sought other parties to assume responsibility for the bridge.

In early 1994, the Chesaning Riverfront Improvement Coalition, an organization, which included the chamber of commerce, and other civic groups whose focus was the Chesaning riverfront, proposed moving the structure several miles to Chesaning, where it would be placed in a park environment. As these plans were being developed, a group of Chesaning Township residents called "The Parshallburg Bridge Foundation" was being organized to preserve the bridge in place. In July 1994, the coalition has dropped its plans for moving the bridge pending the outcome of the efforts to preserve the bridge at the Parshallburg location.

In January 1996, the Parshallburg Bridge Foundation gave up on its efforts to preserve the bridge in place, and the Riverfront Coalition announced its renewed interest in relocating the bridge to Cole Park in the Village of Chesaning. In May of 1996, an application for federal Intermodal Surface Transportation Enhancement Act funds was submitted by the Village of Chesaning and approved by the Michigan Department of Transportation to help pay for this undertaking.

In 1998, plans for the relocation are moving forward. It is anticipated that the bridge will be moved to Cole Park in May 1999, and open to the public by Summer 2000. The current plans for the replacement structure proposes for work to begin 1999 on a new, wider three span concrete I-beam bridge to be placed at the location of the existing bridge.

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"Historic mill falls to wrecker's ball," Saginaw News, Saginaw, MI, November 3, 1979.

"Historic Parshallburg Mill Nears End." Owosso Argus Press, Owosso, MI, March 12, 1982.

"Historic bridge may have new home" The Flint Journal, Flint, MI, December 26, 1993.

"Townpeople cross over bridge" The Detroit News, Detroit, MI, May 1, 1994.

Verbal Boundary Description and Justification

Rectangular area centered on the bridge span's midpoint and with long sides parallel with sides of the truss span – 200 ft. in length and 40 in width. UTM reference marks the midpoint. This includes the truss structure itself and the stone abutments and wingwalls.